WHAT IS CLAIMED IS:

1. A microphone array apparatus comprising:

a microphone array including microphones, one of the microphones being a reference microphone;

filters receiving output signals of the microphones; and

a filter coefficient calculator which receives the output signals of the microphones, a noise and a residual signal obtained by subtracting filtered output signals of the microphones other than the reference microphone from a filtered output signal of the reference microphone and which obtain filter coefficients of the filters in accordance with an evaluation function based on the residual signal.

2. The microphone array apparatus as claimed in claim 1, further comprising:

delay units provided in front of the filters; and

a delay calculator which calculates amounts of delays of the delay units on the basis of a maximum value of a crosscorrelation function of the output signals of the microphones and the noise.

3. The microphone array apparatus as claimed in claim 1, wherein the noise is a signal which drives a speaker.

4. The microphone array apparatus as claimed in claim 1, further comprising a supplementary microphone which outputs the noise.

5. The microphone array apparatus as claimed in claim 1, wherein the filter coefficient calculator includes a cyclic type low-pass filter which applies a comparatively small weight to memory values of a filter portion which executes a convolutional operation in an updating process of the filter coefficients.

6. A microphone array apparatus comprising:

a microphone array including microphones;

linear predictive filters receiving output signals of the microphones;

linear predictive analysis units which receives the output signals of the microphones and update filter coefficients of the linear predictive filters in accordance with a linear predictive analysis; and

a sound source position detector which obtains a crosscorrelation coefficient value based on linear predictive residuals of the linear predictive filters and outputs information concerning the position of a sound source based on a value which maximizes the crosscorrelation coefficient value.

7. The microphone array apparatus as claimed in claim 6, wherein:

a target sound source is a speaker; and

the linear predictive analysis unit updates the filter coefficients of the linear predictive filters by using a signal which drives the speaker.

8. A microphone array apparatus comprising:

a microphone array including microphones;

a signal estimator which estimates positions of estimated microphones in accordance with intervals at which the microphones are arranged by using the output signals of the microphones and a velocity of sound and which outputs output signals of the estimated microphones together with the output signals of the microphones forming the microphone array; and

a synchronous adder which pulls phases of the output signals of the microphones and the estimated microphones and then adds the output signals.

9. The microphone array apparatus as claimed in claim 8, further comprising a reference microphone located on an imaginary line connecting the microphones forming the microphone array and arranged at intervals at which the microphones forming the microphone array are arranged,

wherein the signal estimator which corrects the estimated positions of the estimated microphones and the output signals thereof on the basis of the output signals of the microphones forming the

microphone array.

10. The microphone array apparatus as claimed in claim 9, further comprising an estimation coefficient decision unit weights an error signal which corresponds to a difference between the output signal of the reference microphone and the output signals of the signal estimator in accordance with an acoustic sense characteristic so that the signal estimator performs a signal estimating operation on a band having a comparatively high acoustic sense with a comparatively high precision.

11. The microphone array apparatus as claimed in claim 8, wherein:

given angles are defined which indicate directions of a sound source with respect to the microphones forming the microphone array;

the signal estimator includes parts which are respectively provided to the given angles;

the synchronous adder includes parts which are respectively provided to the given angles; and

the microphone array apparatus further comprises a sound source position detector which outputs information concerning the position of a sound source based on a maximum value among the output signals of the parts of the synchronous adder.

12. A microphone array apparatus comprising:

a microphone array including microphones;

a sound source position detector which detects a position of a sound source on the basis of output signals of the microphones;

a camera generating an image of the sound source;

a second detector which detects the position of the sound source on the basis of the image from the camera; and

an integrate decision processing unit which outputs information indicating the position of the sound source on the basis of the information from the sound source position detector and the information from the second detector.